

**Claims**

1. A process for preparing a polymeric hydroperoxide which in a redox reaction forms free-radical polymer but no low molecular weight free radical, characterized in that a synthetic polymer comprising at least one tertiary hydroxyl group or olefin function is reacted with concentrated hydrogen peroxide and a concentrated mineral acid.
2. The process as claimed in claim 1, characterized in that  $H_2O_2$  having a concentration of from 50 to 70% is used.
3. The process as claimed in claim 1 or 2, characterized in that sulfuric acid having a concentration of from 50 to 80% is used as concentrated mineral acid.
4. The process as claimed in any of the preceding claims, characterized in that the polymer is used as a solution in an organic solvent.
5. The process as claimed in any of the preceding claims, characterized in that a polysiloxane polyol, polyether polyol or polyester polyol is used as starting material.
6. The process as claimed in any of the preceding claims, characterized in that the reaction is carried out at a temperature of from +10 to +60°C.

## Claims

1. A process for preparing a polymeric hydroperoxide which in a redox reaction forms free-radical polymer but no low molecular weight free radical, characterized in that a synthetic polymer which comprises at least one tertiary hydroxyl group or olefin function and has no further groups which are reactive toward the peroxidation reagent used is introduced into a mixture of concentrated hydrogen peroxide and a concentrated mineral acid.
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7. The process as claimed in any of the preceding claims, characterized in that a polysiloxane polyol dissolved in a lower alcohol is used.
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8. A process for preparing copolymers by redox polymerization using a peroxidic polymerization initiator, characterized in that, to avoid formation of homopolymers, a hydroperoxide prepared by adding a synthetic polymer which comprises at least one tertiary hydroxyl group or olefin function and has no further groups which are reactive toward the peroxidation reagent used to a mixture of concentrated hydrogen peroxide and a concentrated mineral acid is used as redox polymerization initiator and the copolymerization is carried out at a temperature below 90°C.
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9. The process as claimed in claim 8, characterized in that the polymer is used as a solution in an organic solvent.
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10. The process as claimed in claim 8 or 9, characterized in that a polyether polyol, polyester polyol or polysiloxane polyol is used as starting material.